

## Flood stages during January, 1923.

River and station.	Flood stage.	Above flood stages—dates.		Crest.	
		From	To	Stage.	Date.
<b>ATLANTIC DRAINAGE.</b>					
Santee:	Feet.			Feet.	
Rimini, S. C.	12	3	8	13.2	5-6
Do.	12	12	12	12.4	12
Do.	12	26	30	13.1	29
Ferguson, S. C.	12	4	14	12.9	8
Do.	12	28	(1)	12.5	30-31
Oconee:					
Milledgeville, Ga.	22	24	25	23.2	25
Ocmulgee:					
Macon, Ga.	18	24	24	18.0	24
Abbeville, Ga.	11	31	(1)	11.4	31
<b>EAST GULF DRAINAGE.</b>					
Apalachicola:					
River Junction, Fla.	12	27	27	12.1	27
Blountstown, Fla.	15	26	31	16.5	27
Tombigbee:					
Lock No. 4, Demopolis, Ala.	39	25	(1)	47.1	29
Black Warrior:					
Lock No. 10, Tuscaloosa, Ala.	46	24	25	47.0	24
Pearl:					
Jackson, Miss.	20	25	(1)	22.5	30
<b>MISSISSIPPI DRAINAGE.</b>					
Ohio:					
Evansville, Ind.	35	30	(1)	36.2	31
Henderson, Ky.	33	30	(1)	33.5	31
Green:					
Lock No. 6, Ky.	30	24	26	31.7	25
Lock No. 4, Ky.	33	23	(1)	41.3	26
Lock No. 2, Ky.	34	26	(1)	39.0	31
Black:					
Black Rock, Ark.	14	22	27	16.7	23
Do.	14	31	(1)	16.0	31
Cache:					
Patterson, Ark.	9	29	(1)	10.2	31
Sulphur:					
Ringo Crossing, Tex.	20	31	31	20.1	31
<b>COLUMBIA BASIN DRAINAGE.</b>					
Columbia:					
Vancouver, Wash.	15	7	12	19.0	10
Willamette:					
Eugene, Oreg.	10	1	1	11.2	1
Do.	10	6	9	18.0	7
Albany, Oreg.	20	7	10	30.0	8
Salem, Oreg.	20	7	10	31.0	8
Oregon City, Oreg.	12	2	13	19.2	9
Portland, Oreg.	15	7	13	25.3	9
McKenzie:					
Hendricks Bridge, Oreg.	14	7	7	14.4	7
Santiam:					
Jefferson, Oreg.	10	6	9	18.5	7
Yamhill:					
McMinnville, Oreg.	35	6	10	43.1	7
Clackamas:					
South Fork, Oreg.	12	5	11	23.5	7

<sup>1</sup> Continued into February.<sup>2</sup> Said to have been higher.

## MEAN LAKE LEVELS DURING DECEMBER, 1922.

By UNITED STATES LAKE SURVEY.

[Detroit, Mich., January 6, 1923.]

The following data are reported in the "Notice to Mariners" of the above date:

Data.	Lakes.*			
	Superior.	Michigan and Huron.	Erie.	Ontario.
Mean level during December, 1922:				
Above mean sea level at New York.....	Feet. 602.08	Feet. 579.15	Feet. 571.13	Feet. 244.64
Above or below—				
Mean stage of November, 1922.....	-0.27	-0.39	-0.28	-0.51
Mean stage of December, 1921.....	+0.09	-0.39	-0.53	-0.19
Average stage for December, last 10 years.....	-0.30	-1.02	-0.70	-0.89
Highest recorded December stage.....	-1.05	-3.43	-2.40	-2.97
Lowest recorded December stage.....	+0.88	+0.15	+0.27	+1.21
Average relation of the December level to—				
November level.....		-0.20	-0.20	-0.20
January level.....		+0.20	+0.10	0.00

\* Lake St. Clair's level: In December, 574.12 feet.

## MEAN LAKE LEVELS DURING JANUARY, 1923.

By UNITED STATES LAKE SURVEY.

[Detroit, Mich., February 5, 1923.]

The following data are reported in the "Notice to Mariners" of the above date:

Data.	Lakes.*			
	Superior.	Michigan and Huron.	Erie.	Ontario.
Mean level during January, 1923:				
Above mean sea level at New York.....	Feet. 601.86	Feet. 579.02	Feet. 571.17	Feet. 244.50
Above or below—				
Mean stage of December, 1922.....	-0.22	-0.13	+0.04	-0.14
Mean stage of January, 1922.....	+0.27	-0.29	-0.33	-0.23
Average stage for January, last 10 years.....	-0.26	-0.99	-0.58	-0.99
Highest recorded January stage.....	-0.92	-3.65	-2.38	-3.10
Lowest recorded January stage.....	+0.98	-0.08	+0.21	+0.70
Average relation of the January level to—				
December, 1922, level.....		-0.10	0.00	+0.10
February, 1923, level.....		0.00	+0.10	0.00

\* Lake St. Clair's level: In January, 573.70 feet.

## EFFECT OF WEATHER ON CROPS AND FARMING OPERATIONS: JANUARY, 1923.

By J. WARREN SMITH, Meteorologist.

January, 1923, was unusually favorable for outdoor operations in nearly all sections of the country as the weather was generally mild for the season except in the more Northeastern States. It was especially warm throughout the month in the central trans-Mississippi States and lower Great Plains where the monthly mean temperatures were 10° or more above normal. Considerable rain fell from the lower Mississippi Valley northeastward and precipitation was slightly above normal in the extreme upper Mississippi Valley, the northwestern Lake region, the central Plateau districts of the West, and along the north Pacific coast. Rainfall was very light in the extreme Southeast and in the southern Great Plains, considerable sections of the latter area receiving practically none. Heavy snowfall occurred in the central Plateau districts, and the Northeast from northern Pennsylvania and northern New Jersey northeastward.

Wheat fields were bare of snow throughout the month in the principal winter wheat belt, except for a light covering in the northern portion. Owing to continued mild weather, however, wheat suffered no material damage and remained in satisfactory condition, except where drought persisted in the western portion of the belt. The crop was in uncertain condition in western Kansas, as much of it had not come up and deterioration was reported in central and western Oklahoma and northwestern Texas because of lack of moisture. The snowfall was beneficial for winter grains in the central Plateau districts of the west and in the far Northwest, while the fields were amply protected by snow in the more northern States. Conditions were generally favorable for winter grains in the south Atlantic and east Gulf districts. Some spring oats were seeded as far north as southeastern Kansas near the close of the month.

The weather was favorable for the growth of truck crops in California and the Gulf coast sections, except that there was a lack of moisture in parts of Texas. Some frost damage occurred locally in the interior of Florida on the 17th, and part of the month was rather too dry for truck in portions of that State. Conditions were favorable for handling and marketing tobacco in the Ohio Valley and South Atlantic States. At the close

of the month potatoes were coming up in the Hastings district of Florida and potatoes and early vegetables were being planted as far north as Arkansas.

The unusually mild weather produced conditions favorable for stock quite generally but at the same time there was a continued lack of moisture for ranges from eastern Colorado and western Kansas southward. There was enough moisture the latter part of the month to

benefit ranges in southern New Mexico and the rain and heavy snow at higher altitudes were helpful in northern Arizona. The deep snow caused heavy feeding in Nevada.

The weather was generally favorable for fruit and there was no material frost damage. Peach trees were blooming in southern Texas at the close of the month and colder weather was needed in southern districts to check premature development.

CLIMATOLOGICAL TABLES.<sup>1</sup>

## CONDENSED CLIMATOLOGICAL SUMMARY.

In the following table are given for the various sections of the climatological service of the Weather Bureau the monthly average temperature and total rainfall; the stations reporting the highest and lowest temperatures, with dates of occurrence; the stations reporting the greatest and least total precipitation; and other data as indicated by the several headings.

The mean temperature for each section, the highest and lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperatures and precipitation are based only on records from stations that have 10 or more years of observations. Of course, the number of such records is smaller than the total number of stations.

*Condensed climatological summary of temperature and precipitation by sections, January, 1923.*

Section.	Temperature.								Precipitation.							
	Section average.	Departure from the normal.	Monthly extremes.						Section average.	Departure from the normal.	Greatest monthly.		Least monthly.		Section average.	Departure from the normal.
			Station.	Highest.	Date.	Station.	Lowest.	Date.			Station.	Amount.	Station.	Amount.		
Alabama.	52.0	+5.9	Auburn.	81	21	2 stations.....	23	* 4	In.	3.99	-0.89	Fayette.....	6.51	Tuskegee.....	In.	1.37
Alaska.																
Arizona.	47.2	+4.0	2 stations.....	87	* 8	Williams.....	5	28	In.	0.66	-0.74	Fort Valley.....	2.59	4 stations.....	In.	0.00
Arkansas.	48.6	+7.7	Portland.	80	14	Evening Shade.....	15	23	In.	5.78	+1.55	Texarkana.....	9.71	Booneville.....	In.	1.75
California.	45.4	-0.4	Riverside.	94	8	Madeleine.....	-27	31	In.	3.39	+2.10	Crescent City.....	12.46	2 stations.....	In.	0.00
Colorado.	29.5	+5.8	Canon City.	79	18	2 stations.....	-32	6	In.	0.51	-0.43	Crested Butte.....	3.04	16 stations.....	In.	0.00
Florida.	61.7	+2.6	Orlando.	88	29	Garniers.....	27	* 5	In.	1.75	-1.05	Fenholloway.....	6.09	Homestead.....	In.	0.08
Georgia.	51.3	+4.5	4 stations.....	81	* 22	Clayton.....	18	23	In.	4.01	+0.07	Marshallville.....	7.41	St. Georges.....	In.	0.62
Hawaii.																
Idaho.	28.3	+4.4	Lewiston.	61	7	Obsidian.....	-30	29	In.	2.56	+0.36	Wallace.....	10.00	Murphy.....	In.	0.88
Illinois.	33.8	+7.3	Bonduaine.	70	18	3 stations.....	5	* 10	In.	1.74	+0.70	Cairo.....	7.01	Beardstown.....	In.	0.57
Indiana.	33.8	+5.2	2 stations.....	64	18	2 stations.....	4	* 10	In.	2.92	-0.27	Rome.....	6.32	La Porte.....	In.	0.60
Iowa.	26.7	+8.8	do.....	53	17	do.....	-10	28	In.	0.83	-0.20	Guthrie Center.....	2.34	Thurman.....	In.	0.00
Kansas.	38.5	+8.6	do.....	79	17	do.....	5	* 22	In.	0.13	-0.55	Pittsburg.....	1.99	19 stations.....	In.	0.00
Kentucky.	41.0	+5.5	do.....	88	* 11	Berea.....	11	17	In.	6.11	+1.72	Bowling Green.....	8.94	Farmers.....	In.	3.99
Louisiana.	58.0	+6.8	6 stations.....	82	* 13	Minden.....	25	* 1	In.	4.21	-0.34	Lakeside.....	12.94	Angola.....	In.	1.18
Maryland-Delaware.	34.8	+2.3	Cambridge, Md.	68	21	Oakland, Md.	0	17	In.	4.20	+0.92	Grantsville, Md.	6.14	Keedysville, Md.	In.	2.49
Michigan.	21.3	+1.8	Houghton Lake.	49	18	Humboldt.....	-25	23	In.	1.82	-0.10	Grand Marais.....	6.56	Mount Clemens.....	In.	0.55
Minnesota.	12.5	+4.6	2 stations.....	49	* 6	Warroad.....	-39	5	In.	0.97	+0.21	Colquet.....	2.48	Crookston.....	In.	0.00
Mississippi.	53.3	+6.5	Waynesboro.	82	31	Austin.....	23	1	In.	4.47	-0.47	Merrill.....	6.53	Fruitland Park.....	In.	1.73
Missouri.	39.2	+8.5	Hollister.	75	18	Bethany (2).....	3	* 6	In.	2.72	+0.46	Vanduser.....	7.55	Oregon.....	In.	0.12
Montana.	25.4	+6.3	Roundup.	70	* 21	2 stations.....	-31	* 30	In.	1.20	+0.01	Heron.....	7.50	4 stations.....	In.	0.00
Nebraska.	31.2	+9.1	Purdum.	72	17	3 stations.....	-8	* 27	In.	0.35	-0.21	Arden.....	1.51	do.....	In.	0.00
Nevada.	38.8	+3.3	Las Vegas.	79	14	Rye Patch.....	-9	31	In.	0.82	-0.27	McGill.....	2.11	Las Vegas.....	In.	0.07
New England.	18.3	-2.6	3 stations.....	53	1	Pittsburg, N. H.	-38	18	In.	5.56	+2.22	Kingston, R. I.	8.97	Burlington, Vt.	In.	2.42
New Jersey.	30.1	+0.2	Long Branch.	66	21	Layton.....	-14	31	In.	5.22	+1.57	Ridgefield.....	7.26	Pleasantville.....	In.	3.41
New Mexico.	38.8	+4.8	Artesia.....	82	11	Dulce.....	-24	28	In.	0.33	-0.32	Batemans Ranch.....	1.82	40 stations.....	In.	0.00
New York.	20.7	-2.2	2 stations.....	54	* 1	Indian Lake.....	-36	7	In.	4.39	+1.43	Scarsdale.....	9.76	Utica.....	In.	1.54
North Carolina.	44.0	+2.8	Smithfield.	78	21	Parker.....	9	17	In.	3.77	-0.07	Bryson City.....	6.72	Altapass.....	In.	0.96
North Dakota.	10.1	+5.2	Hettinger.	56	9	Pembina.....	-35	5	In.	0.53	-0.01	Forman.....	1.36	Parshall.....	In.	0.00
Ohio.	32.5	+4.1	Chilo.	64	* 1	Midfordton.....	-4	17	In.	3.46	+0.44	Green.....	6.17	Bowling Green.....	In.	1.39
Oklahoma.	47.5	+9.1	Woodward.	83	17	Beaver.....	9	28	In.	2.00	+0.80	Muskogee.....	6.23	9 stations.....	In.	0.00
Oregon.	36.3	+3.0	Pilot Rock.	76	10	Fremont.....	-23	31	In.	6.08	+1.65	Cascade Locks.....	24.92	Vale.....	In.	0.29
Pennsylvania.	29.1	+1.2	Marcus Hook.	62	21	Hawley.....	-17	31	In.	4.26	+0.82	Elk Lick.....	7.74	Ansonia.....	In.	1.91
Porto Rico.	72.4	-0.8	Utuado.	93	29	Albonito.....	46	5	In.	2.81	-0.89	Comerio Falls.....	6.70	2 stations.....	In.	0.00
South Carolina.	49.0	+3.6	3 stations.....	80	* 21	Santuck.....	20	17	In.	2.74	-0.72	Gaston Shoals.....	4.77	St. George.....	In.	0.87
South Dakota.	23.1	+7.9	Wagner.....	66	17	Pollock.....	-20	31	In.	0.49	-0.05	Waters Ranch.....	2.58	2 stations.....	In.	0.05
Tennessee.	44.4	+5.5	Newport.	72	21	2 stations.....	-17	* 13	In.	6.19	+1.19	Dover.....	8.73	Franklin.....	In.	4.27
Texas.	56.4	+8.0	2 stations.....	93	* 7	Cifat.....	7	3	In.	1.88	+0.13	Mount Pleasant.....	11.30	13 stations.....	In.	0.00
Utah.	31.6	+5.7	Springdale.	70	* 9	Pine View.....	-12	15	In.	1.42	-0.07	Park City.....	6.29	Lemay.....	In.	0.29
Virginia.	38.7	+2.6	Cape Henry.	74	21	Mount Weather.....	7	17	In.	3.55	+0.25	Mendota.....	7.33	Langley Field.....	In.	1.57
Washington.	34.6	+4.4	Quilcene.	69	16	Snyders Ranch.....	-18	30	In.	6.96	+2.18	Wind River.....	31.88	Wahluke.....	In.	0.18
West Virginia.	35.2	+3.0	2 stations.....	68	* 7	Cheat Bridge.....	-2	17	In.	4.46	+0.64	Parsons.....	7.60	Upper Tract.....	In.	1.18
Wisconsin.	18.2	+4.3	Sheboygan.	47	18	3 stations.....	-27	* 6	In.	1.38	+0.11	Port Washington.....	2.65	Mondovi.....	In.	0.47
Wyoming.	25.5	+5.8	Echeta.	67	17	2 stations.....	-23	* 13	In.	0.73	-0.13	Dutch Joe.....	4.73	4 stations.....	In.	0.00
Porto Rico <sup>2</sup> .	74.0	-0.6	San German.	94	4	Jayuya.....	51	30	In.	8.83	+4.21	Comerio Falls.....	21.40	Portola.....	In.	0.18

<sup>1</sup> For description of tables and charts, see REVIEW, July, 1922, pp. 384-385.

<sup>2</sup> Other dates also.

<sup>3</sup> Late report, December, 1922.